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# SCIENCE

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## THE FINANCIAL STATUS OF COLLEGE TEACHERS<sup>1</sup>

IN 1908 the Foundation reported in its second bulletin the results of an enquiry concerning the financial status of the teaching staff of higher institutions in America and Germany. An examination of salary schedules for the year 1912-13 makes it possible to treat certain of the topics of that bulletin more fully and to measure the change in salaries during the past five years.

### THE VARIABILITY OF SALARIES IN THE SAME INSTITUTION

A small institution performing a fairly unified educational service, such as giving instruction in the traditional academic subjects, or training engineers, or teaching law, may do its work conveniently with a staff of men graded rather sharply as, say, professors, assistant professors and instructors, with a fixed salary attached to each grade or title. The teaching staff may even be on almost absolute financial equality, four fifths of its members being "professors" and doing the work of teaching with here and there an assistant of lower title and salary.

Such simple fiscal arrangements were common a generation ago; they still persist in some of the older and smaller colleges; but they are now becoming obsolete, and no one can understand the financial sta-

<sup>1</sup>Based upon a study by Professor Edward L. Thorndike, of Teachers College, Columbia University, of reports made by the institutions to the Foundation. From the eighth Annual Report of the President of the Carnegie Foundation for the Advancement of Teaching.

tistics of our higher institutions by thinking of the teaching staff as sharply graded by a few academic titles, and of each title as significant of a given salary. Where there are professional schools, the salary attached to the title of professor may, in the same institution, range from \$500 to a maximum of \$5,000, there being actually twenty-five different sums received as annual salaries by the full professors in a single American university. In this institution thirteen different sums, ranging from \$750 to \$4,000, were received by persons who held the title of associate professor; fourteen different sums, ranging from \$1,800 to \$3,600, by assistant professors; and eighteen different sums, ranging from \$200 to \$2,000, by instructors. There were also clinical professors, clinical instructors, and several other academic grades causing further variability, and within each of these grades there was a still further variability of its own.

Even where there are no professional schools, the variation of salary is very great. For example, in two institutions without professional schools nineteen different sums, ranging from \$2,000 to \$5,000, were received by professors; thirteen different sums, ranging from \$600 to \$1,700, by instructors; and sixteen different sums, ranging from \$1,000 to \$3,000, by officers of intermediate grades. This variation is for the salaries of men—were women included, it would be greater. So far as could be ascertained, all of the salaries considered, except perhaps some of those for instructors, were for the full year's work of full-time teaching. There were both lower and higher salaries than those mentioned, but these were for exceptional conditions, as of part-time teaching or administrative work.

Both institutions illustrate the overlapping of academic grades with respect to

salary. Over one fourth of the teachers of intermediate grade receive salaries as high as, or higher than, the lowest full professor's salary; nearly one fourth of the instructors receive salaries reaching or passing the lowest point for salaries of teachers of intermediate grade. Such overlapping is in no sense exceptional; in the larger institutions the fact that certain individuals of lower rank receive more salary than other individuals of higher rank is so frequent as to be almost the rule.

#### THE SALARIES OF THE TEACHING STAFF OF COLLEGES AND UNIVERSITIES IN 1912-13

Such variability of salary for the same academic grade, either by the separation into distinct salary steps or by a gradual ranging, together with the overlapping of academic grades in salary, make the financial statistics of higher institutions difficult to present and interpret without misleading. The difficulty is increased by the differences in practise between institutions and between the same institution in different years, with respect to the significance of a given academic rank. For example, associate professors may be far above assistant professors in dignity and salary in one institution and in another be substantially on a level with them. The average salary of assistant professors may appear to have been lowered between 1907-08 and 1912-13, when in reality such service was better rewarded than before by the addition of a higher intermediate grade or title for those performing this service, and the relegation of the title of assistant professor to those performing a different service. Other complexities are added by differences in policy as to the distribution of salaries within the same grade, differences in the services performed by different individuals of the same grade, and the like.

The only sound and adequate basis for

a statement of the financial status of the teacher in a higher institution is a list of names, giving in each case salary, age, absence and pension rights, services performed, services permitted outside the institution, amount of training, and amount of experience in the institution and elsewhere. No college or university publishes such a list, and it is doubtful whether any governing board keeps such a systematic list, though it is precisely these facts that a competent head of department or college president has in mind and combines with his knowledge of the teacher's scholarship, efficiency and devotion in recommending financial provisions. It is a regrettable fact that at present we know far more about such topics as the relation of age to salary, or of length of experience to salary, in the case of elementary and high school teachers than in the case of college teachers. Indeed, the published facts for the last are practically limited to the survey made in the bulletin of the foundation to which reference has been made.

The first step obviously is to provide knowledge of the salaries that are actually paid, and this the foundation is enabled to do, through the courtesy of institutions in submitting their pay-rolls for study. As the common statements of average salaries give such imperfect and misleading notions, the detailed distribution of the relative frequencies of each salary has been studied.<sup>2</sup>

<sup>2</sup> Some thirty group tables were made for the following colleges and universities: *Group 1*, Carleton College, Franklin College and Ripon College; *Group 2*, Bates College, Clarkson School of Technology, Drury College, Grinnell College, Lawrence College and Mount Holyoke College; *Group 3*, Drake University and Newcomb College (of Tulane University); *Group 4*, Beloit College, Centre College of Kentucky, Dickinson College, Hobart College, Marietta College and Wabash College; *Group 5*, Hamilton College, Oberlin College, University of Pittsburgh, Tufts College and

The facts as reported are not offered as infallible in every respect. The foundation was unwilling to impose on the institutions concerned the burden of answering detailed questions; consequently a salary may occasionally be recorded as smaller than it really was (because the individual was on leave of absence for part of the year, or was in receipt of an added payment under another department), or as larger than it really was (because a payment recorded on the pay-roll in a second department was actually included in the first payment recorded). Some mistakes of copying in and from the pay-rolls and in further tabulations are probably inevitable. The facts reported give, however, a thoroughly trustworthy general picture of what they attempt to present.

The facts compiled are for salaries in 1907-08 as well as in 1912-13, permitting measurements of the rise of salaries as well as of the present status. They are arranged

Washington and Jefferson College; *Group 6*, Middlebury College, University of Rochester, University of Vermont and Wellesley College; *Group 7*, Bowdoin College, Clark College, Indiana University, Purdue University, Swarthmore College, Trinity College (Connecticut) and Union College; *Group 8*, Dartmouth College, University of Missouri and Worcester Polytechnic Institute; *Group 9*, Lehigh University, University of Minnesota, Tulane University, Washington University (Missouri) and Western Reserve University; *Group 10*, University of Cincinnati and Vassar College; *Group 11*, Amherst College, University of Virginia and Williams College; *Group 12*, Cornell University, University of Michigan and University of Wisconsin; *Group 13*, Case School of Applied Science, Rensselaer Polytechnic Institute and Stevens Institute of Technology; *Group 14*, University of California, Massachusetts Institute of Technology and University of Toronto; *Group 15*, Johns Hopkins University, Leland Stanford Junior University, Princeton University and Yale University; *Group 16*, Columbia University and Harvard University. None of these group tables is here published, but the foundation will be glad to make them available to scholars.

in four divisions—salaries for instructors or tutors or whatever grade represents approximately the first rank of teachers with a full program, salaries for full professors, salaries for standard intermediate grades, and salaries for all of these grades combined. The salaries of assistants, or whatever grade represents approximately the work of men who are primarily students, are not included. The salaries of irregular grades, such as lecturer, which may carry an instructor's work or a part-time professor's work, or signify casual visits, or a dignified assistantship, are likewise excluded. Presidents are also excluded, but deans and directors of schools or departments are included. Teachers in medical schools, dental schools and schools of pharmacy are also excluded, being more fitly made the subject of separate study. Payments for work in summer schools are excluded. The salary of a teacher in service for only one semester is recorded as it would be for a full year's service. The aim is to show the recompense given for what is a teacher's full service in any institution in question. Although there are doubtless occasional failures to make the necessary distinctions precisely, the tables show the typical with adequate precision. In the salary scales, which form parts of the table, \$400 means from \$350 to \$449, \$500 means from \$450 to \$549, \$600 means from \$550 to \$649, and so on.

Upon examination of Table I. it will be seen that the institutions do not differ very greatly in the salaries given to instructors. We may, without serious error, group all these salaries for all institutions. The low-salaried institutions pay in the main from \$750 to \$1,200, the others from \$750 to \$1,500. It must be remembered that some of the instructors in the larger institutions included in these tables, though carrying a full program of class teaching,

are really of the apprentice type, engaged in study for a higher degree. The instructor in these colleges is somewhat better paid than the male teachers in American high schools. The median salary for the latter is \$900; the average salary, little if any over \$1,000; and the proportion of salaries at \$500 to \$900 much greater. It is perhaps worthy of mention that the salaries of the mechanics employed in university shops and laboratories are distinctly below the average instructor's salary in the same institution. Fuller analysis of the financial status of the instructor must be delayed until enough individual life-histories of college teachers are available to permit the correlation of salary with age, experience in teaching, and amount of education received in preparation for teaching.

In the salaries attached to intermediate grades, associate professors, and assistant professors, institutions differ more widely. The gradation is rather steady, so that any grouping of the institutions has to be somewhat arbitrary, and its results are necessarily less instructive. There are groups of institutions with average salaries for the intermediate grades of \$1,200 to \$1,400; with average salaries of \$1,488, \$1,537 and \$1,571; with average salaries of \$1,747 to \$2,076; and lastly the Harvard-Columbia group with average salaries still higher.

These summaries appear in Table II. There are no clear "species" of teachers in this grade from the fiscal point of view. By reason of age, ability and differences in the significance of the titles concerned, the salaries spread from \$1,000 to \$4,000 with no close grouping around specially frequent salaries, save perhaps around \$1,500 for the colleges of moderate salary-schedules. If the grade of associate professor had been kept separate throughout, there would have been a somewhat, but not much, closer

TABLE I  
THE SALARIES OF INSTRUCTORS IN 1912-13

Annual Salary	In Group A <sup>3</sup>		In Group B <sup>4</sup>		In Group C <sup>5</sup>		In All Institutions Combined	
	Gross Frequency	Percentile Frequency	Gross Frequency	Percentile Frequency	Gross Frequency	Percentile Frequency	Gross Frequency	Percentile Frequency
\$400	1	.9					1	.1
500	2	1.7	1	.1	1	.3	4	.3
600	3	2.6	5	.6	6	1.5	14	1.0
700	2	1.7	24	2.8	6	1.5	32	2.3
800	14	12.0	68	7.9	22	5.5	104	7.5
900	11	9.4	66	7.6	11	2.8	88	6.4
1,000	40	34.2	219	25.3	90	22.6	349	25.3
1,100	10	8.5	112	13.0	16	4.0	138	10.0
1,200	22	18.8	142	16.4	68	17.1	232	16.8
1,300	2	1.7	81	9.4	41	10.3	124	9.0
1,400	7	6.0	87	10.1	39	9.8	133	9.6
1,500	1	.9	40	4.6	54	13.6	95	6.9
1,600	2	1.7	8	.9	15	3.8	25	1.8
1,700			4	.5	5	1.3	9	.7
1,800			1	.1	10	2.5	11	.8
1,900			2	.2	1	.3	3	.2
2,000			2	.2	12	3.0	14	1.0
2,100								
2,200			1	.1			1	.1
2,300			1	.1			1	.1
2,400								
2,500			1	.1	1	.3	2	.1
Number of individuals.....	117		865		398		1,380	
Average salary....	\$1,027		\$1,121		\$1,238		\$1,147	
Median salary....	\$1,000		\$1,100		\$1,200		\$1,100	

clustering around central points in the case of either grade. In the case of Columbia and Harvard, where the grade of associate professor is distinctly superior in

<sup>3</sup> Group A includes Carleton, Franklin, Ripon, Bates, Clarkson, Drury, Grinnell, Lawrence, Mount Holyoke, Drake, Newcomb, Beloit, Centre, Dickson, Hobart, Marietta, Wabash, Hamilton, Oberlin, Pittsburgh, Tufts and Washington and Jefferson.

<sup>4</sup> Group B includes Middlebury, Rochester, Vermont, Wellesley, Bowdoin, Clark (Collegiate), Indiana, Purdue, Swarthmore, Trinity (Connecticut), Union, Dartmouth, Missouri, Worcester Polytechnic, Lehigh, Minnesota, Tulane, Washington (Missouri), Western Reserve, Cincinnati, Vassar, Amherst, Virginia, Williams, Cornell, Michigan, Wisconsin, Case, Rensselaer and Stevens.

<sup>5</sup> Group C includes California, Massachusetts Institute of Technology, Toronto, Johns Hopkins, Leland Stanford, Princeton, Yale, Harvard and Columbia.

TABLE II  
SALARIES OF COLLEGE TEACHERS OF INTERMEDIATE GRADE IN 1912-13

*Associate Professors, Assistant Professors and Preceptors; Junior Professors in the University of Michigan*

Annual Salary	In Institution Groups in Which the Average Salary for This Grade is \$1,200 to \$1,400 <sup>6</sup>		In Institution Groups in Which the Average Salary for This Grade is \$1,488 to \$1,561 <sup>7</sup>		In Institution Groups in Which the Average Salary for This Grade is \$1,747 to \$2,076 <sup>8</sup>		In Columbia and Harvard Universities	
	Gross Frequency	Percentile Frequency	Gross Frequency	Percentile Frequency	Gross Frequency	Percentile Frequency	Gross Frequency	Percentile Frequency
\$800	1	1.6						
900								
1,000	5	7.9	2	1.5	6	.7		
1,100	6	9.5	2	1.5	2	.2		
1,200	17	27.0	16	8.6	17	1.9		
1,300	9	14.3	10	5.3	12	1.3	1	.6
1,400	11	17.5	22	11.8	13	1.5		
1,500	6	9.5	59	31.5	113	12.7	2	1.3
1,600	5	7.9	29	15.5	89	10.0		
1,700	3	4.8	14	7.5	49	5.5		
1,800			21	11.2	122	13.7		
1,900			1	.5	39	4.4	2	1.3
2,000			8		200	22.5	20	12.5
2,100			1	.5	13	1.5	2	1.3
2,200					37	4.2	17	10.6
2,300					30	3.4	4	2.5
2,400					32	3.6	5	3.1
2,500			1	.5	65	7.3	29	18.1
2,600			1	.5	6	.7	10	6.3
2,700					9	1.0	2	1.3
2,800					8	.9	1	.6
2,900					2	.2	1	.6
3,000					25	2.8	38	23.8
3,100								
3,200							1	.6
3,300							3	1.9
3,400								
3,500					.1		12	7.5
3,600							1	.6
3,700								
3,800							1	.6
3,900								
4,000							7	4.4
4,400							1	.6
Number of individuals.....	63		187		890		160	
Average salary....	\$1,300		\$1,544		\$1,924		\$2,648	
Median salary....	\$1,300		\$1,500		\$1,900		\$2,500	

<sup>6</sup> Including the colleges in groups 1 to 4. See note on page 849.

<sup>7</sup> Including the colleges in groups 5 to 7. See note on page 849.

<sup>8</sup> Including the colleges in groups 8 to 15. See note on page 849.

TABLE III

THE SALARIES OF FULL PROFESSORS IN 1912-13

*Frequencies of Each Salary Amount in Specified Groups of Institutions*

Annual Salary	In Carleton, Franklin, and Ripon	In Bates, Clarkson, Drury, Grinnell, Lawrence, and Mount Holyoke	In Drake, Newcomb, Beloit, Center of Ky., Dickinson, Hobart, Marietta, and Wabash	In Hamilton, Oberlin, Pittsburgh, Tufts, Washington and Jefferson, Middlebury, Rochester, Vermont, and Wellesley	In Bowdoin, Clark College, Indiana, Purdue, Swarthmore, Trinity (Conn.), and Union	In Dartmouth, Missouri, Worcester Polytechnic, Lehigh, Minnesota, Tulane, Washington (Mo.), and Western Reserve	In Cincinnati, Vassar, Amherst, Virginia, Williams, Cornell, Michigan, Wisconsin, Case, Rensselaer, and Stevens	In California, Massachusetts Technology, and Toronto	In Johns Hopkins, Stanford, Princeton, and Yale	In Columbia and Harvard	Frequencies in All Institutions Combined, Sealed by Steps of \$500		
												Gross	Percentile
\$800			1								\$750		
900											to 1,249	12	.8
1,000			1										
1,100	8	1	1										
1,200	1	2		1							1,250		
1,300	7	3	2	1							to 1,749	147	9.3
1,400	2	12	13	4	5								
1,500	2	16	1	5	2	2							
1,600	1	28	35	2									
1,700	3	5	21	14	4	3		1					
1,800			6	4							1,750		
1,900	2	5	2	64	16	10	2	1	3		to 2,249	227	14.3
2,000				9	7	1			1				
2,100			2	24	1	15		1					
2,200			1	4	13	10	3	2	1				
2,300			2	4	13	19	1				2,250		
2,400		1	3	21	42	11	44	6	12	4	to 2,749	266	16.8
2,500				2	1	10	1	1		under 3,000			
2,600			3		12	10	7	2	2				
2,700				4	12	11	6	1					
2,800					19	7					2,750		
2,900			1	6	5	25	77	18	38	3	to 3,249	286	18.1
3,000				1	1	10							
3,100					1	4	33		1				
3,200			1		1	4	24	7	2				
3,300					2	2			3		3,250		
3,400					1	5	67	8	25	8	to 3,749	205	13.0
3,500				1		18	4	16	2	3			
3,600						2							
3,700							6	1	2	1			
3,800							2		2				
3,900					1	8	32	37	63	35	3,750		
4,000						1	2				to 4,249	194	12.3
4,100									1				
4,200							1	1					
4,300									1				
4,400						1	7	3	22	2	4,250		
4,500										27	to 4,749	67	4.2
4,600										1			
4,700													
4,800													
4,900											4,750		
5,000						5	3	8	34	44	to 5,249	95	6.0
5,100										1			
5,200										1			
5,300										1			
5,400									3	34	5,250		
5,500											to 5,749	40	2.5
5,600													
5,700										1	5,750		
5,800											to 6,249		
5,900							3		1	21		25	1.6
6,000									1	17	Over 6,250	18	1.1
Over 6,000													
											1,582 individuals Median salary \$3,000		

salary, there would be a fairly pronounced influence of this sort.

We may say roughly that the teachers in intermediate grades in the smaller institutions are financially in a class with the instructors in institutions like Columbia, Harvard, Yale, Hopkins, Stanford, California and Princeton. How often they are, like these latter, young men proving their worth, and how often they are mature men whose achievements have not been such as to put them ahead financially, is a question to be settled only by proper measurements of the correlation of age with salary. The teachers in intermediate grades of institutions like Oberlin College get from \$1,200 to \$1,800, and represent gifted young men, somewhat older men waiting for fairly assured promotion, and still older men who have nearly or quite reached their salary limit as college teachers. The 890 teachers in intermediate grades in institutions like Dartmouth College or the University of Minnesota represent the group of assistant professors whose status has been studied by Professor Guido Marx,

plus a financially superior group of junior professors and associate professors in large institutions.

In the case of the full professors, we have in Table III. the story of the salaries of mature men and women, accepted as teachers of the highest rank, in sixty-one institutions. This fairly represents the status of the full professor in the hundred and fifty better higher institutions of America.

There is a certain significance in the combined facts for the salaries of all these full-time teachers of accepted standing in the higher schools of America, which are shown in Table IV., although in this table all ages and all of the institutions are mixed. The significance lies in the possibility of easy comparison with similar facts for other professions or branches of civil service, and of easy contrast with salaries in industrial and commercial organizations. One such comparison with the salaries of men teachers in public high schools of the United States is made in the table itself.

TABLE IV  
THE DISTRIBUTION OF THE SALARIES 1912-13  
*Of the 4,262 Instructors, Assistant Professors, Associate Professors and Professors in the 61 Institutions Combined*

Salary	Frequency			Totals	Totals Expressed in Percentages	Similar Percentages for Male Teachers in Public High Schools in 1908 (approximate)
	Instructors	Teachers of Intermediate Grades.	Full Professors			
Under \$750	51			51	1.2	30.5
\$750 to 1,249	911	74	12	997	23.4	44.3
1,250 to 1,749	386	447	147	980	23.0	13.0
1,750 to 2,249	29	483	227	739	17.3	7.1
2,250 to 2,749	3	194	266	463	10.9	3.1
2,750 to 3,249		76	286	362	8.5	1.6
3,250 to 3,749		17	205	222	5.2	.5
3,750 to 4,249		9	194	203	4.8	
4,250 to 4,749			67	67	1.6	
4,750 to 5,249			95	95	2.2	
5,250 to 5,749			40	40	.9	
5,750 to 6,249			25	25	.6	
Over 6,250			18	18	.4	
Number of individuals.....	1,380	1,300	1,582	4,262		



## THE RELATION OF SALARY TO AGE

An adequate treatment of the relation of salary to age requires the fiscal history of individual teachers. To infer the changes in salary due to age from the differences found between the salaries of groups classified by age is unsafe, since those who abandoned college training for other occupations at any age are very likely to differ as to salary from those who remain, and since we can not assume that the ability of those entering college teaching has remained constant during the forty years past. The foundation hopes to give the topic such adequate treatment in the future. The present section reports only measures of the variation of salary at the same age for certain groups—a limited and not exactly representative selection from college teachers of 251 men, all teachers of mathematics or the natural sciences in certain universities, who had been active enough in science by the year 1910 to be included in the second edition of Professor Cattell's "American Men of Science." The choice of these was dictated by practical exigencies and the results must not be taken strictly at their face value, although the use made of the facts has been kept free from fallacies due to the nature of the selection of these individuals. The selection is such as to exclude men of all ages of slight scientific achievement and to exclude somewhat more strictly the youngest. Also, as stated, it is a selection of men from, on the whole, a superior group of institutions.

In general, we have a fairly steady rise in salaries from the group of age 34 with a median salary of \$1,800, through age 36 at \$2,000, age 38 at \$2,200, age 40 at \$2,500, age 42 at \$2,200, age 45 at \$2,850, to \$3,200 at age 49, and \$3,300 at age 53. For the reasons stated, this result should be used with caution. What is certain is

that the effect of age within these limits is real, large and more persistent to later ages than probably would have been assumed *a priori*.

There is an interesting difference in salary and in the relation of age to salary between the men who were rated in Professor Cattell's list of the 1,000 most esteemed as scientific workers and those who were less distinguished. In salary the more distinguished group have an advantage of about \$800 at ages 36 and 38, about \$1,000 at ages 40 and 42, about \$1,500 at ages 44 and 46, and a still greater advantage at later ages. The median salary for the distinguished group rises from about \$3,000 at ages 36, 38, 40 and 42, to \$3,500 at ages 44 to 46, \$4,000 at ages 48, 50, 52 and 54, and \$5,000 at higher ages; while the median salary for the others remains at approximately \$2,000 through ages 36 to 46, and is only \$2,500 and \$2,650 in the case of ages 48 to 54 and 56 and over. These figures are from too few cases to be used as precise measures of the differences in question, but are adequate to prove that ability as estimated by one's fellow scientists receives very substantial recognition in salary, and that, as in other professions and in industry and commerce, the less gifted men reach their maximum salary much earlier than the more gifted.

The variation in salaries for the same age is, as students who have made the matter a subject of careful observation and thought would expect, very wide. Men not over two years apart in age differ in respect to salary to such an extent that the highest salary is about four times the lowest. The intervening salaries are spread fully over the scale. Men receiving \$2,000 may be from under 30 to over 60 years old, and men can be found with that salary at every intervening age. The effect of more

complete and more exactly representative data would be to increase the range of variation. This variation, it may be added, is a sign of healthy adaptation to the wide differences in energy, scholarship and devotion which must be expected even within such a picked group of men as college teachers.

#### THE APPRENTICESHIP SYSTEM IN AMERICAN HIGHER INSTITUTIONS

The higher institutions of America maintain an elaborate system of apprenticeship by their provision, fiscal and otherwise, for assistants, readers, teaching fellows and the like, who do educational work under more or less close supervision, generally as part-time workers who are studying for a degree, or who have just completed such study and are maintaining financial independence while waiting for engagement as full-time teachers.

The extent of this apprentice work in the larger institutions may be estimated from the fact that in Columbia, Harvard, Chicago, Michigan, Yale and Cornell there are reported 761 individuals with the title of assistant, more than the number of full-time professors in these same institutions. Some few of these are full-time teachers or scientific workers of experience,<sup>9</sup> but there are, to much more than counterbalance these, teaching fellows and young men with the title of instructor who are really apprentices.

The system is by no means confined to the large universities. Taking at random ten institutions of moderate size (Vassar, Indiana, Purdue, Oberlin, Cincinnati, Armour Institute, Virginia, Washington, Western Reserve and Brown), we find reported 237 assistants to 321 full professors.

<sup>9</sup> In departments of agriculture especially, subordinate scientific workers with salaries of from \$800 to \$1,500 are often given the title of "assistant."

Moreover, there probably are other student assistants unreported because receiving only free tuition.

Even in the small institutions, much of the educational work is done by, and much practical training in college teaching is given to, such apprentices. Again taking ten colleges at random (Lafayette, Bowdoin, Colorado College, Dickinson, Adelphi, University of South Carolina, Goucher, Trinity (Connecticut), Beloit and Washington and Jefferson), we find reported 72 assistants to 157 full professors. Fifty-two of these were reported from a single institution, but, on the other hand, the student-assistants who were given tuition or tuition plus a hundred dollars or so were probably very often left unreported by other institutions in this group.

The fiscal status of these apprentices will not be described here, since any tables of salaries or changes in salaries for them are likely to be misleading unless worked out and presented in connection with fairly exact descriptions of the services which they perform and the training which they receive. These services range from the actual conduct of class-room and laboratory instruction to the mere correction of minor written exercises, or even to work as errand boys, keeping class-rolls, answering the telephone and fetching apparatus. In time required they vary so much that an assistant's pay probably would show a range of from fifty cents per hour to five times as much. The training ranges from such sympathetic guidance as a son might receive in a model father's office to the mere orders and criticisms that an ordinary office boy gets.

It is probable that four out of five of the men and women now entering college and university teaching hold such positions as paid assistants for a year or more. Consequently the organization and remuneration

of the work attached to assistantships offers important problems to the scientific student of administration. At its best an assistantship means self-support while advancing in knowledge and professional training for the assistant, equally good instruction for the classes in question, relief for the professor who can devote himself to work that he prefers, though it is in the popular sense much harder to do, and economy for the fiscal authorities who are enabled to pay certain services no more than efficiency requires.

#### THE CHANGE IN THE SALARIES OF TEACHERS IN HIGHER INSTITUTIONS

The salaries of instructors have shown a clear increase during the past five years. There has been an average gain of \$80. This gain has been caused by a decrease in the proportions of salaries of \$1,000 and under and an increase in the proportions of salaries of \$1,050 and over. The increase has been greatest in the groups of institutions paying on the average under \$1,000 in 1907-08. The gain for these averages \$118, and their median salary has moved up from \$900 to \$1,000. The gain has been least in the institution groups which had the highest salaries in 1907-08, except Harvard and Columbia, being \$63 for the combined group including California, Massachusetts Institute of Technology, Toronto, Johns Hopkins, Stanford, Princeton, Yale, Harvard and Columbia, and much less if Harvard and Columbia are excluded.

Table V. gives the percentage of instructors receiving less than \$650, the percentage receiving from \$650 to \$849, the percentage receiving from \$850 to \$1,049, and so on, both for 1907-08 and for 1912-13. It will be seen that all the low salaries have decreased in relative frequency, while all the high salaries have increased.

TABLE V  
CHANGE IN INSTRUCTORS' SALARIES  
*All Institutions Combined; Coarse Grouping*

Salary	Percentile Frequencies		Differences
	1907-08	1912-13	
Under \$650	2.6	1.4	- 1.2
\$650- 849	13.0	9.9	- 3.1
850-1,049	42.6	31.7	-10.9
1,050-1,249	23.6	26.8	+ 3.2
1,250-1,449	10.8	18.6	+ 7.8
1,450-1,649	6.2	8.7	+ 2.5
1,650-1,849	.7	1.4	+ .7
1,850-2,049	.5	1.2	+ .7
2,050-2,249		.1	+ .1
2,250-2,449		.1	+ .1
2,450-2,649	.1	.1	0

The change in the salaries paid to teachers of intermediate grades is complex and difficult to express. In the institutions paying in 1907-08 in most cases from \$1,000 to \$1,500, clustered around an average of about \$1,200, there has been an average gain of about \$200. This gain concerns positions filled by 110 individuals in 1907-08, and by 161 in 1912-13. In Harvard and Columbia, at the other salary extreme, there has been an average gain of \$226. Here 116 and 160 positions were concerned in 1907-08 and 1912-13, respectively. The remaining institutions, with 660 positions for 1907-08 and 979 for 1912-13, show an average gain of about \$120, the gain being closely the same whether an average of \$1,500, \$1,600, \$1,700, \$1,800 or \$2,000 was paid in 1907-08. The intermediate grades have then made most improvement in the institutions which in 1907-08 paid the very low or the very high salaries.

The general change is shown in Table VI. which gives the percentages (in 1907-08 and in 1912-13) of teachers receiving each salary amount. The grouping shows with special clearness the decrease in relative frequency of salaries below \$1,500 and the increased relative frequency of salaries above \$1,850. The change has been

an advance all along the line, not the mere bringing of very low salaries up to a higher standard, nor the addition of certain high-priced positions.

TABLE VI

THE CHANGE IN SALARIES OF TEACHERS OF INTER-MEDIATE GRADES FROM 1907-08 TO 1912-13

*All Institutions Combined; Coarser Grouping*

Salary	Percentile Frequencies		Differences
	1907-08	1912-13	
Under \$950	.4	.1	— .3
\$950-1,249	11.6	4.8	—6.8
1,250-1,549	23.7	19.8	—3.9
1,550-1,849	25.9	25.7	— .2
1,850-2,149	20.1	22.0	+1.9
2,150-2,449	6.1	9.6	+3.5
2,450-2,749	8.2	9.5	+1.3
2,750-3,049	2.6	5.8	+3.2
3,050-3,349	.4	.3	— .1
3,350-3,649	.2	1.1	— .9
3,650-3,949	.1	.1	0
3,950-4,249	.4	.6	+ .2
Number of individuals . . .	946	1,300	

The salaries of full professors in these institutions have been increased on the average by about \$225, the increase being about the same for institution groups paying salaries, in 1907-08, of \$1,200, \$1,400, \$1,600, \$1,800, \$2,200, \$2,700 or \$3,000. The institution groups paying average salaries (in 1907-08) of \$3,500 and \$3,750 show smaller gains, about \$125; Columbia and Harvard show larger, about \$350. The low-salaried institutions have thus increased their professors' salaries by a percentage far greater than that of the high-salaried institutions. The general change is shown in Table VII, which gives the relative frequencies of each salary amount in steps of \$500 in 1907-08 and 1912-13 for all of the institutions combined. The decrease in the lower salaries is clearly shown, the professorial staff having been moved up by about \$200 all along the salary scale.

TABLE VII

THE CHANGE IN SALARIES OF FULL PROFESSORS FROM 1907-08 TO 1912-13

*All Institutions Combined; Coarse Grouping*

Salary	Percentile Frequencies		Differences
	1907-08	1912-13	
\$750-1,249	2.9	.8	—2.1
1,250-1,749	12.3	9.4	—2.9
1,750-2,249	16.2	14.5	—1.7
2,250-2,749	15.3	17.1	+1.8
2,750-3,249	19.9	17.6	—2.3
3,250-3,749	9.9	12.6	+2.7
3,750-4,249	12.6	12.3	— .3
4,250-4,749	2.8	4.3	+1.5
4,750-5,249	4.4	6.1	+1.7
5,250-5,749	2.1	2.6	+ .5
5,750-6,249	.5	1.6	+1.1
Over 6,250	1.0	1.2	+ .2

From the results of this new examination of the financial status of college teachers, it will be seen that the situation, as compared with that of five years ago, is encouraging. In spite of a variability of salaries in the same institutions and of a financial overlapping of academic grades, there is coming to be a kind of general agreement upon a salary for a college instructor that is rather better than that of the man who teaches in a high school. Junior professors in the smaller colleges receive salaries almost equal to those of instructors in the large universities. Of 1,500 representative full professors one fourth receive \$2,250 or less, one fourth \$3,750 or more, and one tenth \$5,000 or more, the median salary of all being \$3,000. All salaries have increased during the last five years—those of instructors have risen by about \$80, those of junior professors show a gain of from \$120 to \$226, those of full professors show an increase of from \$125 in the smaller institutions to \$350 in the largest. Teachers who by general agreement are considered distinguished receive from \$800 to \$2,400 more than their colleagues of the same age.